

Title (en)

Capacitive sensing system using heating element as antenna electrode

Title (de)

Kapazitives Erfassungssystem, welches ein Heizungselement als Antennenelektrode verwendet

Title (fr)

Système de détection capacitif utilisant un élément chauffant comme électrode d'antenne

Publication

EP 2572942 A1 20130327 (EN)

Application

EP 12183625 A 20120910

Priority

LU 91872 A 20110921

Abstract (en)

A capacitive sensing system for being connected to a heating element (12) comprises a capacitive detector (24) connectable to the heating element and a common mode choke (28) for essentially preventing alternating current from flowing from the heating element to the heating current supply (22). The capacitive detector is configured for driving an alternating current into the heating element and for producing an output indicative of capacitance based upon the alternating current. The choke has a first (30) and a second (32) winding for connecting the heating element with the heating current supply. The choke comprises a third winding (34) connected in parallel of the first and/or second winding. The capacitive detector is configured for measuring a portion of the alternating current flowing across the third winding and for taking into account the measured portion of alternating current when producing the output.

IPC 8 full level

B60R 21/015 (2006.01); **B60N 2/56** (2006.01); **B62D 1/06** (2006.01)

CPC (source: EP US)

B60N 2/002 (2013.01 - US); **B60N 2/003** (2023.08 - EP); **B60N 2/5685** (2013.01 - EP US); **B60R 21/015** (2013.01 - US); **B60R 21/01532** (2014.10 - EP US); **B60R 21/0154** (2014.10 - EP US); **B62D 1/046** (2013.01 - EP US); **B62D 1/065** (2013.01 - EP US); **B60N 2210/12** (2023.08 - EP)

Citation (applicant)

- US 6161070 A 20001212 - JINNO KAZUNORI [JP], et al
- US 6392542 B1 20020521 - STANLEY JAMES G [US]
- WO 9217344 A1 19921015 - BOSCH GMBH ROBERT [DE]
- WO 9513204 A1 19950518 - BOSCH GMBH ROBERT [DE], et al
- US 7521940 B2 20090421 - KOCH STU [US], et al
- US 2009295199 A1 20091203 - KINCAID KEVIN D [US], et al
- US 6703845 B2 20040309 - STANLEY JAMES GREGORY [US], et al
- US 2011121618 A1 20110526 - FISCHER THOMAS [DE], et al
- J. R. SMITH: "Electric Field Sensing for Graphical Interfaces", COMPUTER GRAPHICS I/O DEVICES, 1998, pages 54 - 60

Citation (search report)

- [AD] US 2011121618 A1 20110526 - FISCHER THOMAS [DE], et al
- [AD] US 6703845 B2 20040309 - STANLEY JAMES GREGORY [US], et al
- [A] DE 102009055424 A1 20110707 - TAKATA PETRI AG [DE]
- [A] EP 1553699 A1 20050713 - TDK CORP [JP]

Cited by

WO2020053410A1; DE102019106959A1; DE102015206662B3; CN107531266A; EP3048029A4; LU100928B1; US10276300B2; US10259484B2; WO2017086863A1; WO2016074953A1; WO2018146061A1; CN106132295A; EP3153379A4; EP3127477A4; EP3345542A1; AU2016354860B2; WO2016166090A1; US10814898B2; US10308273B2; DE112019004585T5

Designated contracting state (EPC)

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Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

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DOCDB simple family (application)

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